

Claims:

1. An apparatus comprising:

a dielectric layer;

an adhesion layer comprising silicon overlying the dielectric layer; and

a phase-change material overlying the adhesion layer.

2. The apparatus of claim 1, wherein the adhesion layer is in on the dielectric layer.

3. The apparatus of claim 1, wherein the phase-change material is on the adhesion layer.

4. The apparatus of claim 1, wherein the adhesion layer consists essentially of silicon.

5. The apparatus of claim 1, wherein the adhesion layer comprises at least forty percent silicon atoms by weight.

6. The apparatus of claim 1, wherein the adhesion layer comprises hemispheric grain polysilicon.

7. The apparatus of claim 1, wherein the adhesion layer comprises three

dimensional grains.

8. An apparatus comprising:

a dielectric layer having a surface that lies substantially within a plane, the dielectric layer having a surface area define by a square in the plane;

5 an interfacial layer overlying the dielectric layer, wherein the interfacial layer has a surface having a surface area over the square greater than the surface area of the dielectric layer; and

a chalcogenide layer overlying the interfacial layer.

9. The apparatus of claim 8, wherein the interfacial layer comprises silicon.

10. The apparatus of claim 8, wherein the chalcogenide material is on the interfacial layer.

11. An apparatus comprising:

an adhesion layer having a rough surface; and

a phase-change material on the first layer.

12. The apparatus of claim 11, wherein the first layer comprises silicon

13. The apparatus of claim 12, wherein the first layer comprises hemispherical grain polysilicon.

14. The apparatus of claim 11, wherein the adhesion layer has a surface comprising bumps having an average height of at least 30 Angstroms.

15. The apparatus of claim 11, further comprising a dielectric layer, wherein
5 the adhesion layer is on the dielectric layer.

16. The apparatus of claim 15, wherein the dielectric layer comprises silicon dioxide or silicon nitride.

17. The apparatus of claim 11, wherein the phase-change material comprises
10 a chalcogenide alloys

18. The apparatus of claim 17, wherein the phase-change material comprises
15 GeSbTe alloys.

19. A method comprising:

forming an interfacial layer having three dimensional grains; and

forming a phase-change material over said interfacial layer.

20 20. The method of claim 19, wherein forming an interfacial layer includes
forming an interfacial layer over an insulator.

21. The method of claim 19, wherein forming the interfacial layer includes

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forming a layer having hemispheric grains.

22. The method of claim 19 wherein forming an interfacial layer includes forming a layer comprising silicon.

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23. The method of claim 19 further including forming the interfacial layer over a layer of dielectric material.

24. The method of claim 23 further including forming an opening through said interfacial layer and insulator.

25. The method of claim 24 further including forming the phase-change material over the interfacial layer and in the opening.

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